CLAIMS

1. A maze generation method for generating a maze, using a genetic algorithm, the method comprising the steps of:

generating blocks by dividing a given plane into given shapes;

setting reference point blocks for setting walls in alternate blocks of the generated blocks;

assigning, to the reference point blocks, chromosomes for determining ways to set walls in blocks contiguous on one side to the reference point blocks; and

searching for an optimum chromosomes to be assigned to the reference point blocks by the genetic algorithm to generate an optimum maze.

2. An antenna optimum design method for designing a structure of an antenna having a structure in which a metal patch is placed on an antenna element plane, using a genetic algorithm, the method comprising the steps of:

generating blocks by dividing the metal patch on the antenna element plane into given shapes;

setting reference point blocks in alternate blocks of the generated blocks;

assigning, to the reference point blocks, chromosomes for determining ways to arrange metal patches in blocks contiguous on one side to the reference point blocks;

calculating characteristics of the antenna uniquely determined by the chromosomes; and

searching for an optimum chromosomes to be assigned to

the reference point blocks by the genetic algorithm to optimize the antenna characteristics.

3. The antenna optimum design method as set forth in claim 2, wherein:

the antenna includes an unfed element plane formed in parallel with the antenna element plane, with a metal patch placed on a surface thereof; and

the metal patches on the antenna element plane and the unfed element plane are divided into given shapes in the block generating step.

4. The antenna optimum design method as set forth in claim 2, wherein:

the antenna includes a ground plane with a metal surface; a short-circuit element for short-circuiting the metal patch on the antenna element plane and the metal surface on the ground plane; and a feed point connected to the ground plane for feeding the metal patch on the antenna element plane; and

the metal patch is placed in a block to which the short-circuit element and the feed point are connected.

5. The antenna optimum design method as set forth in claim 2, wherein:

the antenna includes a ground plane with a metal surface, and a short-circuit element plane with a metal patch placed on a surface thereof;

the metal patch placed on the short-circuit element plane constitutes a short-circuit element for short-circuiting the

metal patch on the antenna element plane and the metal surface on the ground plane; and

the metal patches on the antenna element plane and the short-circuit element plane are divided into given shapes to generate blocks in the block generating step.

6. The antenna optimum design method as set forth in claim 5, wherein:

the antenna includes a feed point with a central conductor connected to the metal patch on the antenna element plane and an outer conductor connected to the metal surface on the ground plane; and

the chromosomes include a position coordinate of the feed point on the short-circuit element plane.

7. The antenna optimum design method as set forth in claim 2, wherein return loss characteristics and gain characteristics at multiple frequencies are used as the antenna characteristics.

8. The antenna optimum design method as set forth in claim 2, wherein when it is decided that metal patches in all blocks surrounding a given block be removed in the step of determining ways to arrange metal patches, it is decided that a metal patch in the given block be removed.

9. The antenna optimum design method as set forth in claim 2, wherein when it is decided that metal patches in all blocks surrounding a given block not be removed in the step of

determining ways to arrange metal patches, it is decided that a metal patch in the given block not be removed.

10. A program for implementing an antenna optimum design method as set forth in claim 2.

11. An antenna designed by an antenna optimum design method as set forth in claim 2.